

## CLAIMS

What is claimed is:

1. A photonic package comprising:

a housing;

5 a semiconductor light source disposed within the housing, the semiconductor light source having a first output and a second output;

a reflective surface disposed inside the housing to reflect said second output;

and

10 a photodetector disposed within the housing adapted to indirectly receive said second output of the semiconductor light source reflected off said reflective surface.

2. The photonic package of claim 1, wherein the photonic package comprises an optical transponder.

15 3. The photonic package of claim 1, wherein the reflective surface comprises an exterior surface of an elevated substrate angularly disposed relative to the second output, to reflect said second output to said photodetector.

20 4. The photonic package of claim 1, wherein the photonic package further comprises a reflective mirror to angularly reflect the second output.

5. The photonic package of claim 4, wherein the reflective surface comprises a side wall of the housing optically coupled to said reflective mirror to further reflect the second output to said photodetector.
- 5 6. The photonic package of claim 4, wherein the reflective surface comprises an interior surface of a cover of the housing optically coupled to said reflective mirror to further reflect the second output to said photodetector.
- 10 7. The photonic package of claim 1, wherein the first output is provided from a front facet of the semiconductor light source.
8. The photonic package of claim 1, wherein the second output is provided from a back facet of the semiconductor light source.
- 15 9. The photonic package of claim 1, wherein the photodetector comprises a photodiode.
10. The photonic package of claim 9, wherein the photodiode comprises a p-i-n junction photodiode.
- 20 11. The photonic package of claim 1 further said reflective surface comprises a reflective coating.

12. The photonic package of claim 11, wherein the reflective coating comprises paint having a pigment of titanium dioxide.

13. The photonic package of claim 1 further comprising a processor to receive  
5 electrical signals from the photodetector.

14. The photonic package of claim 13, wherein the processor comprises a  
processor having at least access to characterization data to facilitate calibration of  
the received second output reflected off the reflective surface.

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15. The photonic package of claim 1 further comprising a reflective surface to  
deflect the second output to the interior surface.

16. A method for forming a photonic package comprising:  
15 providing a semiconductor light source to provide a first and a second output;  
providing a reflective surface to reflect the second output of the  
semiconductor light source; and

adapting a photodetector to indirectly receive the second output of the  
semiconductor light source reflected from the interior surface.

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17. The method of claim 16 further comprises providing a processor to receive an  
electrical signal from the photodetector corresponding to the indirectly received  
second output of the semiconductor light reflected off the reflective surface.

18. The method of claim 17 further comprises providing a plurality of  
characterization data to relate to the received second output of the semiconductor  
light source indirectly received, reflected off the reflective surface, to facilitate  
5 calibration of the second output of the semiconductor light source.

19. The method of claim 16, wherein said providing of a reflective surface  
comprises providing a substrate having an angular exterior surface, and the method  
further comprises disposing said substrate in a manner such that said angular  
10 exterior surface of the substrate reflects said second output of the semiconductor  
light source to said photodetector.

20. The method of claim 16, wherein said providing of a reflective surface  
comprises providing a reflective interior surface to a housing of the photonic  
15 package, and the method further comprises providing the photonic package with a  
reflective mirror and disposing said reflective mirror in a manner such that said  
reflective mirror reflects said second output of the semiconductor light source to said  
reflective interior surface of the house, for reflection to said photodetector.